

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Robert Angelo Mercuri
Serial No:	10/714,445
Filed:	November 14, 2003
For:	Method For Forming Impressions In A Flexible Graphite Material
Examiner:	Jeffrey Michael Wollschlager
Group No.	1732
Attorney's Docket No:	P1067/N8825
Customer No:	23456

**RESPONSE TO OFFICE ACTION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This is in response to the Office Action mailed April 6, 2006, for the above-referenced application. Remarks will be presented on the pages that follow.

**Remarks/Arguments** begin on page 2 of this paper.

## REMARKS

Claims 1-12 are pending in the above-captioned application. Claims 1-3, 5, 6, and 8-12 stand rejected under 35 U.S.C. §102(b) over Lohrke et al. (U.S. Patent No. 4,752,518). In addition, Claims 1-4, 6, and 8-12 are also rejected under 35 U.S.C. 102(b) over Davis et al. (U.S. Patent Application Publication No. US 2002/0102321). Furthermore, Claim 5 stands rejected under 35 U.S.C. 103(a) over Davis et al. with Claim 7 rejected under 35 U.S.C. 103(a) over Davis et al. in view of Mercuri et al. (U.S. Patent No. 6,528,199).

As noted, the two primary references relied on in the Office Action for all rejections are Lohrke et al. and Davis et al. Before turning to a comparison showing the patentable distinctions between the cited references and the claims of the present invention, it will be helpful to review the fundamental teachings of the present invention as contrasted to those of both Lohrke et al. and Davis et al.

The present invention is directed toward a method of making impressions in a flexible graphite material including the steps of oscillating a forming element against the flexible graphite sheet to form a plurality of impressions. For example, the impressions created can be designed as transverse fluid channels used in conjunction with fuel cells. A further aspect of the invention of the above-captioned application includes a method of embossing a flexible graphite sheet by way of oscillating a forming element against a sheet of flexible graphite thereby forming a

plurality of substantially adjacent indentations on the surface of the sheet. On Page 23, Paragraphs 69 and 70 of the above-captioned application, Applicant describes a method of oscillating a forming element against a flexible graphite sheet. Further disclosure includes that virtually any apparatus that provide a vibratory motion can be adapted for an oscillating element for use with the invention.

As a basis for better understanding the scope of the rejected claims, the plain meaning of the term “oscillate” needs to be employed. As defined in The American Heritage Dictionary of the English Language (Houghton Mifflin 1981), oscillate means “to swing back and forth with a steady uninterrupted rhythm.” See also the definition in Dictionary.com. This is precisely the manner in which the term is used in the above-captioned application, as illustrated at paragraphs [0069]-[0070].

Neither Lohrke et al. nor Davis et al. even remotely suggest the invention of the rejected claims. As such withdrawal of these rejections is appropriate and respectfully requested. Specifically, Lohrke et al. discloses the forming of a plurality of apertures in a graphite foil by disposing the graphite foil beneath a cylinder provided with a plurality of pins. In Column 5, Lines 25 through 35, the use of a rotating cylinder with punching pins is described to create apertures in graphite foil which is fed beneath the cylinder. Furthermore, Lohrke et al. discloses an additional method of making the graphite foil with apertures by using a rectangular shaped device with a plurality of pins which may be placed on the

surface of the graphite foil and either pressed lightly with a hammer, mallet, or like to make apertures upon the surface.

The Lohrke et al. reference cannot read on an oscillating element as the disclosure of Lohrke et al. is for a rotating cylinder or a plate with pins which creates the aperture in the graphite material. Specifically, nothing in the Lohrke et al. reference reads upon an oscillating element which swings back and forth with a steady, uninterrupted rhythm.

Likewise, Davis et al. also does not read upon an oscillating element as described in the above-captioned application. In Davis et al., a die is used to cut portions of a graphite material to a desired shape. Specifically, the disclosure includes a cutting tool used to pinch-cut a graphite sheet to create apertures in a material for the desired shape. Furthermore, the embossing element of Davis et al. is significantly distinct from the method of creating impressions of the above-captioned application wherein Davis et al. uses a die press to create impressions in a graphite material. As illustrated in Figure 2a of Davis et al., the continuous series of lines of die 100 are used to form impressions in the surface of a graphite sheet. This is in contrast to the forming element of the above-captioned application as the die 100 for forming impressions in a graphite sheet does not oscillate, or otherwise stated, swing back and forth with the steady uninterrupted rhythm to make impressions in the graphite article.

Regardless of the language of the disclosures of Davis et al. and Lohrke et al., neither contains any suggestion of the use of an oscillating forming element in the formation of impressions on the surface of a flexible graphite sheet. This being the case, the invention of the claims of the above-captioned application are not anticipated and accordingly Lohrke et al. and Davis et al. could not anticipate the rejected claims and the rejection under 35 U.S.C. 102(b) should be withdrawn.

Moreover, the Davis et al. reference does not even remotely suggest a method which renders obvious the invention of the above-captioned application even if combined with Mercuri et al. The present invention discloses a method of forming impressions in a flexible graphite sheet by using a forming element capable of oscillating. As previously mentioned, Davis et al. utilizes a die for forming apertures and optionally for impressions in a graphite material. An embodiment of the die is illustrated in Figure 2a of the Davis et al. reference in which compression is used to create the graphite material and desired configuration. This is in contrast to an oscillating element of the above-captioned application which in one embodiment can be a pin-marking system which is capable of moving back and forth from the sheet in vibrating contact.

Further distinguishing characteristics of the present invention from Davis et al. include a forming element which can be configured to a process control input to vary the depth of channels, channel design, or other characteristics of the graphite

material. In contrast, a completely different die as described in Davis et al. would have to be designed to make changes to a graphite material.

Nothing in Mercuri et al. adds the required teaching to render obvious the rejected claims. Accordingly, Davis et al. and Mercuri et al., even when viewed in combination, cannot render obvious the rejected claims and the rejection under 35 U.S.C. §103(a) should be withdrawn.

Applicant believes that all the pending claims are in condition for allowance and respectfully request a favorable action to that effect.

## **CONCLUSION**

Based on the foregoing remarks, it is believed that allowance of all pending claims 1-12 is appropriate. Such action is earnestly sought. If there remains any matter which prevents the allowance of any of these claims, the Examiner is requested to call the undersigned collect at 615.242.2400 to arrange for an interview which may expedite prosecution.

Applicants hereby petition the Commissioner for a one month extension of time, extending the time for response to August 7, 2006.

Respectfully submitted,

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**CERTIFICATE OF ELECTRONIC TRANSMITTAL**

**I hereby certify that this Response To Office Action, including Certificate of Electronic Transmittal are being electronically transmitted to the United States Patent and Trademark Office on August 7, 2006.**

James R. Cartiglia

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Signature  
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